Information Technology Career Majors

Description:
Information Technology (IT) is the study, design, development, implementation, support or management of computer-based information systems, particularly software applications and computer hardware.

The Information Technology Career Cluster prepares individuals to apply technical knowledge and skills in rapidly growing occupational fields with Career Majors in: 1) Networking; 2) Computer Maintenance and Support Services; 3) Web Design; 4) and Programming. Below are sample job listings that students could be prepared for through each of the four career majors. Scroll down the page to view a short description of each career along with training necessary, average salary, and projected demand for that occupation.

Networking	Computer Maintenance and Support Services	Web Design	Programming
Network Administrator Network and Computer Security Specialist Technical Writer Network and Data Systems Analyst Computer Hardware Engineer	Computer Support Technician Database Administrator Network and Data Systems Analyst Computer Systems Analyst Computer Information Manager Help Desk Technician Technical Trainer Computer and Electronics Repair Technical Writer Technical Support Specialist	Graphic Designer Database Administrator Webmaster Web Designer Web Technician Computer Animator Technical Writer Interactive Media Developer E-Commerce Manager E-Commerce Marketing Analyst Technical Trainer	Software Engineer Computer Programmer Interface Designer Interface Design and Usability Testing Technical Writer Database Administrator Systems Programmer Software/Applications Programmer

Occupation	Description	Salary	Projected Demand	Training Required	Recommended Certifications**
Computer Hardware Engineer (a.k.a. Computer Scientist)	Just as some engineers build bridges or highways or mines, computer engineers build computers. They're involved in the design, construction and operation of computer hardware and related equipment, and information and communication system networks--mainframe systems, local and wide area networks, fiber-optic networks, wireless communication networks, intranets, the internet and other data communications systems. The lightning-fast advances in computer technology are largely a result of the research, development, and design efforts of computer hardware engineers. To keep up with technological advances, these engineers must continually update their knowledge.	$72,150	Growth will be slow in this area	4 year bachelors degree	MCSE A+
Computer Programmer	Computer programmers write, test, and maintain the detailed instructions, called programs, which computers must follow to perform their functions. Computer programs tell the computer what to do, such as which information to identify and access, how to process it, and what equipment to use. Programmers often are grouped into two broad types: applications programmers and systems programmers.	$45,960-$78,120	Employment of programmers is expected to grow faster than the average for all occupations through 2008.	People enter with high school diplomas, two- and four-year diplomas, master's degrees, and even Ph.D.s.	
Graphic Designer	Graphic designers and illustrators are pros in visual communication. They come up with the ideas and images that make these types of products unique and attractive: Web sites, any type of publication, advertisements, posters, packaging, signs, exhibits, corporate communications and annual reports, logos, corporate or brand identities. Graphic designers and illustrators need to be organized and self-motivated and have very good management skills. Most graphic designers these days do all of their work on a computer using various	$42,970	Increase 22% by 2012	2 year Associates Degree	

	software programs to create images, layouts and illustrations.				
Software\ Applications Programmer	Applications programmers usually focus on business, engineering, or science. They write software to handle a specific job, such as a program to track inventory, within an organization. They may also revise existing packaged software.	$90,582	Increase by 14.6% by 2012	4 year Bachelors Degree	
Systems Programmer	Systems programmers maintain and control computer systems software, such as operating systems, networked systems and database systems. These workers make changes in the sets of instructions that determine how the network, workstations, and central processing unit of the system handle the various jobs they have been given and how they communicate with peripheral equipment, such as terminals, printers, and disk drives.	$62,008	Increase 46% by the year 2012	4 year Bachelors Degree	
Network and Computer Security Specialist	Computer security specialists plan, coordinate, and implement the organization's information security. These workers may be called upon to educate users on computer security, install security software, monitor the network for security breaches, respond to cyber attacks, and in some cases, gather data and evidence to be used in prosecuting cyber crime. This and other growing specialty occupations reflect the increasing emphasis on client-server applications, the expansion of Internet and intranet applications, and the demand for more end-user support.	$69,530	Increase 22% by 2012	4 year Bachelors Degree	Net+ Security+
Computer and Electronics Repair	If you enjoy working with your hands and have an analytical mind and the patience to troubleshoot a device until you manage to get it fixed, a career in electronics or computer repair might be perfect. One of the most important things to remember if you are pursuing a career in electronics and computer repair is how quickly the industry can change. To be successful in the long term, workers should be willing to keep abreast of changes in	$28,000-$98,000	Employment is expected to grow faster than the average for all occupations through 2008.	2 year Associates Degree	A+

	technology.				
Help-desk Technician	Help-desk technicians assist computer users with the inevitable hardware and software questions not addressed in a product's instruction manual. Help-desk technicians field telephone calls and e-mail messages from customers seeking guidance on technical problems. In responding to these requests for guidance, help-desk technicians must listen carefully to the customer, ask questions to diagnose the nature of the problem, and then patiently walk the customer through the problem-solving steps. Most computer support specialists start out at the help desk.	$44,132	Increase 27% by 2012	2 year Degree	A+ MCP
Database Administrator	Database Administrators coordinate changes to computer databases, write code and test computer programs, design structure for computer programs, control user access to databases, and answer user questions. Database administrators typically work with database management systems software to effectively extract data and present that data in an understandable fashion. The database administrator is responsible for understanding every facet of the organization's database system including: performance, modification, security and the platform on which the system is running.	$76,541	Increase 44 percent by the year 2012	4 year Bachelors Degree	MOUS in Access
Interface Designer	Interface designers use human factors engineering, graphic design theory and other methodologies to design the user interface of a computer system. The interface determines how a user is led through a program or process, setting up a likely path or paths for the user to navigate. It also provides a conceptual structure for organizing large amounts of information and offers tools for filtering information and then retrieving it at a later point, according to some set of criteria.	$79,673	Increase 17% by 2012	4 year Bachelors Degree	

Computer Information Manager	Computer and information systems managers plan, coordinate, and direct research and design the computer-related activities of firms. They help determine both technical and business goals in consultation with top management, and make detailed plans for the accomplishment of these goals. Computer and information system managers need strong communication skills. They coordinate the activities of their unit with those of other units or organizations. They confer with top executives; financial, production, marketing, and other managers; and contractors and equipment and materials suppliers.	$82,541	Increase 20% by 2012	4 year Bachelors Degree	
Network Administrator	Network specialists are responsible for the security and administration of computer networks. They also design and implement systems that keep networks functioning in the event of a power failure or other emergency. Network administrators are responsible for the efficient use of networks by organizations. They ensure that the design of an organization's computer site allows all of the components, including computers, the network, and software, to fit together and work properly. Furthermore, they monitor and adjust performance of existing networks and continually survey the current computer site to determine future network needs. Administrators also troubleshoot problems as reported by users and automated network monitoring systems and make recommendations for enhancements in the implementation of future servers and networks.	$62,800	Increase 37% by 2012		MCSE A+ Net+ Security+
Software Engineer	Software engineers work in applications development, analyze users' needs and design, create, and modify general computer applications software or specialized utility programs. These professionals also possess strong programming skills, but they are more concerned with analyzing and solving programming problems than with writing code	$82,920	Increase 46 percent by the year 2012	4 year Bachelors Degree	Certified Software Development Professional by the Institute of Electrical and

	for programs. Software engineers can be involved in the design and development of software systems for control and automation of manufacturing, business, and management processes.				Electronics Engineers
Network and Data Systems Analyst	Systems analysts work with the individual needs of organizations by helping them solve their computer and technology problems. In this way, the organization is able to maintain optimal efficiency in investment, business, and personnel procedures.	$61,660	Increase of 57% by 2012	4 year Bachelors Degree	
Technical Support Specialist	Technical support specialists are troubleshooters, providing valuable assistance to their organization's computer users. Because many employees are not computer experts, they often run into computer problems that they cannot resolve on their own. Technical support specialists install, modify, clean, and repair computer hardware and software. They also may work on monitors, keyboards, printers, and mice. Technical support specialists answer telephone calls from their organizations' computer users and may run automatic diagnostics programs to resolve problems. They also may write training manuals and train computer users how to properly use new computer hardware and software. In addition, technical support specialists oversee the daily performance of their company's computer systems and evaluate software programs for usefulness.	$43,160	Increase of 62% in job availability by the year 2010.	2 year Associate Degree	A+ MCDST
Computer Systems Analyst	Systems analysts solve computer problems and enable computer technology to meet individual needs of an organization. They help an organization realize the maximum benefit from its investment in equipment, personnel, and business processes. Systems analysts may design new systems, including both hardware and software, or add a new software application to harness more of the computer's power. Most systems analysts work with a specific type of	$67,910	Increase by 39 percent by 2012	4 year Bachelors Degree	

	system that varies with the type of organization they work for—for example, business, accounting or financial systems, or scientific and engineering systems. Systems development workers are also referred to as a systems developer and systems architect.			
Technical Writer	Technical writers and editors design, write, and edit manuals and online help in the software industry and other technical fields. In other contexts, they may interpret scientific and technical information for policy makers or for the general public.	$36,480	Increase 27% by 2012	BS degree in English, journalism, or liberal arts, or it may be in engineering, computer science, business, or another field related to the company's product.
Web Designer	Multimedia and Web developers write or edit on-line information in many forms, including on-line help, multimedia products, and web pages. Web designers are responsible for day-to-day site design and creation.	$59,019	Increase 26% by 2012	2 year field related degree
Web Technician	Web technician is an entry level position in which new post-secondary graduates can learn more about server administration, CGI scripting and the maintenance of large websites. Experienced web technicians may move into other computer-related occupations such as computer and network operator, computer programmer, interactive media developer or web designer. Web technicians who have management-related education or experience may become webmasters.	$57,000	New and rapidly growing occupation	2 year field related degree
Interactive Media Developer	Interactive media developers are computer specialists who write, modify, integrate and test computer code for internet applications, computer-based training software, computer games, film, video and other interactive media.	$56,100	Increase 32% by 2012	2 year field related degree
Interface Design and Usability Testing	Usability engineers and interface designers help software developers make and test programs that are more user-friendly.	$70,781	Increase 31% by 2012	4 year Bachelors Degree
Technical Trainer	Teaches people to be productive with technology.	$56,018	Increase 22% by 2012	Experience with various software programs and technology and an ability to

				teach others	
Computer Support Technician	Computer Support Technicians provide first-line technical support to computer users who are having problems with computer hardware, computer applications, and communications software. They know their stuff inside and out. Then they have to know how to explain it so that the user on the other end of the phone line can fix it themselves. They probably have a list of "frequent problems" that are fairly routine, but they also have to do a little detective work sometimes to try to figure how what's wrong, how it got that way, and how to fix it.	$47,890	Employment is expected to grow faster than the average for all occupations through 2008.	2 year Associates Degree	
E-commerce Manager	A person responsible for developing and maintaining e-commerce applications for a company's public Web site.	$75,205	Increase 36% by 2012	4 year Bachelors Degree	
E-commerce Marketing Analyst	Collects and analyzes data to evaluate existing and potential online markets. Uses traffic tracking applications to recognize user patterns and trends to help formulate effective marketing techniques.	$64,000	Increase 36% by 2012	4 year Bachelors Degree	
Computer Animator	Multimedia artists and animators create the movie "magic." Through their imagination, creativity, and skill, they can create anything required by the script, from talking animals to flaming office buildings and earthquakes. Many begin as stage technicians or scenic designers. Computer skills have become very important in this field. Some areas of television and film production, including animation and visual effects, now rely heavily on computer technology. Although there was a time when elaborate computer animation was restricted to blockbuster movies, much of the three-dimensional work being generated today occurs in small to midsized companies.	$54,529	Increase 15% by 2012	4 year Bachelors Degree	
Webmaster	Webmasters are responsible for all technical aspects of a Web site, including performance issues such as speed of access, and for approving the content of the site.	$54,100	Increase 16% by 2012	2 year field related degree	

**Certification is a way to demonstrate a level of competence in a particular field. Some product vendors or software firms offer certification and require professionals who work with their products to be certified. Many employers regard these certifications as the industry standard.

BLOCK
SCHEDULING

Sample A   Year 1

<u>*Block Scheduling*</u>

	1st	**2nd**	**3rd**	**4th**
Spring	Comp & Tech Applications	Comptia: A+	Web Design	Plan
Fall	Comp & Tech Applications	Comptia: Net+	Computer Support Essentials	Plan

Year 2

<u>*Block Scheduling*</u>

	1st	**2nd**	**3rd**	**4th**
Spring	Comp & Tech Applications	Visual Basic	Computer Support Essentials	Plan
Fall	Comp & Tech Applications	JAVA	Help Desk	Plan

Information Technology Career Majors Offered:
Web Design, Networking, Computer Maintenance and Support Services, Programming

6 PERIOD DAY

Sample A   Year 1

6 Period Day					
	1st	**2nd**	**3rd**	**4th**	**5th**	**6th**
Spring	Comp & Tech Applications	Comptia: A+	Computer Support Essentials	Visual Basic	Web Design	Plan

Year 2

6 Period Day					
	1st	**2nd**	**3rd**	**4th**	**5th**	**6th**
Spring	Comp & Tech Applications	Comptia: Net+	JAVA	Comp & Tech Applications	Help Desk	Plan

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